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# BONE-SETTING

SO-CALLED

AND

## THE TREATMENT OF SPRAINS.

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# BONE-SETTING

(SO-CALLED).\*

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MR. PRESIDENT AND GENTLEMEN,—

THIS is the first time in the history of the British Medical Association that so-called “Bone-setting” has been seriously discussed, and I think it is matter for congratulation that we have at last set ourselves impartially to examine the practice, notwithstanding that it is almost exclusively employed by a class of persons who are without our pale. The literature of bone-setting is scanty. Dr. Wharton Hood’s handbook, giving an account of the late Mr. Hutton’s method of setting free stiff limbs, is, so far as I know, the only attempt at a systematic exposition. There are, in addition, some papers, scattered through the various journals, by Mr. Adams, Mr. Howard Marsh, and others, stating their opinion as to what cases are most likely to be benefited by the forcible bending of joints, and giving instances of ill results that have followed such treatment in unsuitable cases. For nearly three years I was assistant to the late Mr. James Taylor, M.R.C.S., of Whitworth, in Lancashire, the last direct descendant of a family that had practised bone-setting in that village for more than two hundred years, and I think I may perhaps be able to throw some light on the subject of this discussion.

Much misconception exists as to the practice of bone-setters; many of the methods of treatment popularly attributed to them have no other existence than in the imagination of ignorant patients, whose stories we, as a profession, are perhaps rather too ready to believe. It is certain that some families—notably the Taylors, Huttons, and Masons—have by their manipulative and mechanical skill justly acquired a great reputation. In what has their practice consisted? First, in the treatment of fractures, recent dislocations, and sprains; secondly, in the cure of stiff

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\* Abridged from a paper read at a discussion before the Surgical Section of the annual meeting of the British Medical Association at Worcester 1882.

joints, resetting of fractures, and correction of deformities. The general impression in the profession appears to be that the bone-setter's art consists of nothing more nor less than the forcible and reckless "cracking up" of stiff joints, so as to make the lame man walk as if by a miracle. The practice at Whitworth was a large one, furnishing constant employment for at least two active men, and consisting chiefly of the cases I have mentioned. Speaking from memory I do not believe that fifty joints of all sorts were "cracked up" during the time I was there; but it was not an uncommon event to have to put up half a dozen fresh fractures and twice as many recent sprains in a single morning. In the North of England the origin of nearly all the men who are fairly good at bone-setting can be traced to the Whitworth surgery, and while, so far as I know, the Taylors in their various settlements at Whitworth, Todmorden, Lockwood, and Oldfield Lane were the only qualified surgeons who practised bone-setting; still, amongst the hills and dales of Lancashire, Yorkshire, and the Lake district, there are many who do so without being qualified, some of whom, I must in all fairness say, put up fractures uncommonly well. But apart from the legitimate credit they have won by the skill displayed in their handicraft, they owe some of their success to the carelessness or indifference of the general body of practitioners, who are apt to overlook little injuries which often become very painful and troublesome. It sometimes seems to me that it is beneath the dignity of the ordinary practitioner to employ any active treatment whatever for a sprain. It is hardly fair then to gauge the work of bone-setters solely by their method of treating diseased joints (probably the most unsatisfactory class of cases in the whole realm of surgery), but we ought also to take into account the patience and skill they display in the treatment of injuries for which they are not unfrequently consulted by the patients of qualified practitioners. I have no desire to hold a brief for every idle fellow who calls himself a bone-setter, but I am anxious that credit should be given where credit is due, and to explain that the *art* of bone-setting is not what it is often thought to be, a mere mixture of charlatanism and good luck.

I purpose chiefly to consider that class of cases to which Mr. Adams and Mr. Marsh have more particularly referred. Dr. Hood (*loc. cit.*) has made out a somewhat extensive list of causes for stiff or weak joints, but I think he had in his mind rather what was *likely* to come to the bone-setter than what actually did come. From my own experience I should classify weak joints as follows:—

1. Those that have become stiff from enforced rest.
2. Those that have become stiff from chronic disease.
3. Joints stiff from injury to the bones entering into their formation.
4. Joints stiff and weak from sprains, including displacement of tendons and partial luxation.

Apart from the previous history of the case, and the evident existence of constitutional disease, there are some external appearances which help to distinguish cases and to afford indications for treatment, and of these the bone-setters have learned by experience to avail themselves.

1. In the first class I have mentioned, the stiffness of the structures about the joint impeding its movements is the result of purely mechanical causes, is in fact simply due to prolonged disuse. No cause for functional activity exists, and consequently the elasticity, the flexibility, and power of adaptation to movement in the parts about the joints not being required, they become stiff and rigid. No degenerative changes, however, take place, and they are capable of being recalled into activity unimpaired. In such a joint the bony points and the outlines of the tendons and ligaments about it seem unnaturally prominent, probably from absorption of the adipose and connective tissue; the rigid ligaments impart a sense of hardness, and if the limb be flexed to its utmost it shows considerable resiliency. Such joints may, I believe, be “cracked up” without fear of consequences, and so constitute one of the successful operations of “Bone-setting.” My own recollection carries me back to some apparently almost marvellous results. I am convinced that *suddenness* ought to be insisted upon in doing this; the advantages derived from it being,



I believe, mainly due to the fact that it is less likely to set up any irritation in the joint than the "dragging" of gradual extension.

2. In the next class of cases, in which stiffness is due to degenerative changes, the external appearances are exactly reversed, the outlines of the joint are more or less gone. In these cases, no matter the character of the disease, manipulative interference is positively vicious; and while it is in them that ignorant bone-setters do so much mischief, the better informed, by the use of splints and well-applied pressure, are highly successful in their treatment.\* I am sorry to say very many cases of this kind come to bone-setters which have not been properly treated before, owing to their not having been recognised, especially hip-joint disease.

3. In the third class of cases, in which a fracture has taken place into the joint, causing stiffness; the condition is due to disturbed relationship of the bones from faulty setting, and is recognised by comparison with the bony land-marks of the sound limb. In these cases forcible treatment does good, though of course the result is in proportion to the amount of bone-displacement, and it should be supplemented by passive movements for some time. In joints stiff after diagonal fracture through the condyles of the humerus, so common in children, I have seen many most gratifying results; one in a boy about twelve years old, whose elbow had been stiff three years, is especially impressed upon my mind.

4. In the fourth class of cases, and those to which I would draw particular attention, I include lameness and weakness, the result of the various forms of injury, which we group together under the general term "a sprain." I affirm most unhesitatingly, from an experience of some hundreds of cases, that nothing has done more to lower the prestige of regular practitioners, and to play into the hands of unqualified bone-setters, than the way in which so many practitioners tamper with a sprained joint. Sprains, of course, vary greatly in severity; they may be broadly divided into two kinds, of which one consists merely of a temporary over-distension of the

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\* Rheumatic cases sometimes do well for a time, but invariably relapse.



parts around a joint, which rest and anodyne applications soon cure, while the other involves pathological results of a much more serious nature. A *severe* sprain is the sum of the injuries that the parts in and about a joint sustain, when, by their passive efforts, they exercise their maximum power of restraint to prevent luxation. Under such conditions I conceive the following changes to take place in the integrity of a joint. In the case of the synovial membrane, temporary hyperæmia accompanied by pain, and some slight effusion into the cavity of the joint. In the case of the tendons, over-stretching and loosening of the lining membrane of their sheaths, more or less disturbance to the adjacent cellular tissue forming the bed of the tendon groove, and hyperæmia with exudation of plastic fluid, subsequently forming adventitious products. In the case of the non-elastic fibrous ligaments—firmly attached at either end to the adjacent periosteum—over-stretching, mostly involving partial rupture, with swelling, softening, and disintegration of their structure. It is beyond the purpose of this communication to draw attention to the plan of treatment adopted by bone-setters under these circumstances; it is, however, described in a paper of mine, of which an abstract is given in the *British Medical Journal* of Sept. 25th, 1880. The stiffness of a sprained joint is *partial*. The surface is generally cold, and more or less œdematous, and each joint has one particular spot in which pressure causes acute pain; the bone-setters have learned by experience the situation of these spots, and this fact has done more than anything to strengthen the popular faith in their intuitive skill; they certainly form an important guide to treatment, since they indicate the seat of greatest injury to the ligaments and point out where their power of passive resistance has been most severely tested, and where adhesions are most likely to have formed. Dr. Hood, in his record of Mr. Hutton's practice, has enumerated some of these painful spots; the chief of them are as follows:—

1. Over the head of the femur in the centre of the groin, corresponding to the ilio-femoral band of the capsular ligament, which is most severely stretched when the thigh is over-extended, as when the trunk is flung violently backwards, the commonest cause of a sprained hip.

2. For the knee-joint, at the back of the lower edge of the internal condyle—in other words, at the posterior border of the internal lateral ligament, where it blends with Winslow's ligament, and where the semi-membranosus tendon is in intimate relation with it. These parts suffer most because, as Mr. Morris says, "During extension they resist rotation outwards of the tibia upon a vertical axis," and a sprained knee is almost always caused by a twist outwards of the foot.

3. For the shoulder at the point corresponding to the bicipital groove, because in nine cases out of ten a man sprains his shoulder to prevent himself from falling, his hand grasps the nearest support, the body is violently abducted from the arm, the long head of the biceps is called upon to exert its utmost restraining power, the bicipital fascia is over-stretched, and the tendon very often displaced.

Again, for the elbow, the painful place is at the front of the tip of the internal condyle; the fan-shaped internal lateral ligament has its apex at that point, and it is most stretched in over-supination, with extreme extension of the forearm. On the front of the external malleolus, at the apex of the plantar arch, the tip of the metatarsal bone, the styloid process of the ulna, the inside of the thumb, and the annular ligament in the front of the wrist, are respectively the most painful spots when those joints are severally sprained.

The manipulative part of the treatment of joints stiff from being sprained may be briefly said to consist in pressure over the part most injured, and momentary extension of the limb, followed by sudden forcible flexion. The method of doing it varies with each joint, and I can with confidence refer you to the descriptions given by Dr. Wharton Hood, as being faithful word-pictures, supplemented, too, by very accurate drawings.

The following are some of the lesser injuries, the non-recognition of which has frequently come under my notice at Whitworth. In the upper limb: Fracture of the tip of the acromion; partial luxation of the acromio-clavicular and sterno-clavicular joints (often happening to men who carry weights on their shoulders); partial dislocation

of the long head of the biceps, with over-extension of the bicipital fascia (common in men who throw weights or use a shovel, as maltsters or navvies); dislocation of the head of the radius forward on the condyle, which is very common in children, and has a marked tendency to cause stiff elbows; fracture of the tip of the internal condyle; overlooked Colles's fracture; partial luxation of the head of the ulna (impeding supination of the hand, and having a tendency to gradually grow worse); severe sprain at the carpometacarpal joint of the thumb (very common in stonemasons, and caused by the "jar" of heavy chisels).

In the lower limb: Fracture of the fibula just above the malleolus and at its tip, these are fruitful sources of lameness, often overlooked, and, if of old standing, very troublesome to treat; partial rupture of the ligamentum patellæ at its insertion into the tubercle of the tibia, which is much more common than is ordinarily supposed;\* neglected over-stretching of the ligaments of the plantar arch, and tearing of the plantar ligament at its insertion into the os calcis; rupture of the penniform muscular attachments of the tendo Achillis, and muscular hernia in the calf.

I trust I shall be forgiven if I have dwelt too much on the *étourderie* of some of us, but I am sure so-called *trifling* injuries deserve more attention at our hands, since living at the high pressure men do nowadays, with every part of their bodies tested to its utmost capacity, the slightest impairment of the mechanism of a limb must be an incalculable source of personal annoyance, discomfort, and disability.

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\* I have seen almost complete rupture unrecognised; while tearing of the ligament from its extensive insertion into the surface of the tibia is very frequent.



## TREATMENT OF SPRAINS.

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THE frequency with which sprains occur in general practice, and the somewhat unsatisfactory results of the treatment ordinarily adopted, induce me to bring forward a method that I have used in a great many cases with considerable success. Sprains may be broadly divided into two kinds, mild and severe; the former consisting merely of a temporary overdistension of the parts around a joint, which rest and anodyne applications usually soon cure; the latter involving, as I believe, much more serious pathological results, which the following plan is specially contrived to obviate.

The effects of a severe sprain are, that the fibrous ligaments controlling the movements of the joint and binding the tendons in their grooves become over-stretched, swollen, and softened; the cellular tissue about the ligaments and in the tendon-grooves becomes œdematous; and plastic material is exuded; while, as a consequence of these changes, the tendons are displaced in their beds. If this condition be not actively treated, it may, and often does, lead to continued lameness, due, in all probability, partly to a diminution in the calibre of the tendon-groove, with impaired muscular action, and partly to the torn ligaments and bruised cellular tissue having undergone changes which render them incapable of adapting themselves to the movements of the joint, which are consequently impeded. I believe this result may be prevented by the application of firm direct equal pressure, applied manually at first, and kept up and controlled by pads placed in the line of the tendons, and kept in position by properly shaped plasters and bandages, and sometimes by splints. This pressure



helps to disperse the œdema, to replace the tendon in its normal position, to hasten the absorption of any plastic exudation, and thus to prevent diminution in the calibre of the tendon-groove. I cannot say this is a novel method of treatment; but I think it is one not usually practised, partly because it entails the expenditure of much time and trouble, and partly, I feel sure, because there is and has been a tendency to underestimate the inconvenience and distress arising from a badly sprained joint.

The common practice, in treating a sprain, is to put on a bandage, telling the patient to take it off if the joint becomes painful, and to substitute warm water fomentations. When the swelling has subsided, if the injury be not so slight as to be already cured, a liniment or the application of iodine is generally ordered. Very frequently the tight bandage causes inflammation, while the rubbing and painting are practically useless. There are numbers of cases of slight sprain, indeed, which will get well with comparatively little treatment or none at all; but in that most severe form where, after an inflammatory or at least exceedingly hyperæmic stage, swelling takes place with the results I have described, the application of these remedies does not prevent the joint from being left rigid, painful, and unfit for use for a very long period. Now it is, as I have said, in preventing all this, that the plan of treatment by direct, equal, and continuous pressure will be found exceedingly valuable; for, where it has been properly carried out, I have always found that the joint returns quickly to its normal condition—pain being speedily relieved, and rigidity prevented. The treatment may be divided into two stages; the first lasting from a day to a week or longer, during which the treatment has to be directed to averting inflammation by rest, warm applications, anodyne lotions, etc.; the second commencing when the joint has become cold, swollen, and painful on movement—in fact, when the injury has assumed a more or less chronic character. It is during this second period that I believe the active treatment I advocate ought to be employed. It is important not to commence this until the surface-heat is normal; for undoubtedly,



when any tendency to inflammation exists in the tendon-sheath, pressure aggravates it, and I have known it to lead to untoward results.

It is of course impossible, within the limits of this paper, to describe the special adaptation of this method to each joint; but I will take as an illustration the ankle. If a wire be passed round the joint so as to impinge on the two malleoli and the tendo Achillis, it will define three or four well-marked hollows: one on each side of the tendo Achillis behind each malleolus, one in front of the fibula, with a fourth shallower one in front of the tibia. When the ankle is severely sprained these fossæ become obliterated, and are filled up with effusion, over-stretched ligaments, and displaced tendons.

Observation has led me to believe that there are very few sprained ankles in which muscular displacement to some degree does not take place. It most commonly occurs in front of the outer malleolus, involving the outer part of the annular ligament, the extensor longus digitorum, and the anterior fasciculus of the external lateral ligament; next, perhaps, the posterior peroneotarsal ligament and structures behind the external malleolus. Cases of similar over-stretching and displacement on the inner side of the ankle are happily rare; but in gravity they bear much the same relation to the former as a Pott's dislocation does to a simple fractured fibula. I will assume an anklejoint has sustained a severe sprain all round, and has arrived at the chronic stage; modifications of the treatment of such a case will meet all that are likely to occur. To carry out the first principles of treatment by direct, *equal*, and continuous pressure, it is clear the fossæ mentioned above must be filled, or rather their sites covered by pads so as to cause the retaining plasters, bandages, and splints to exercise equal pressure everywhere. By making pressure with the thumb from below upwards in the line of the fossæ, a good deal of the œdema may be squeezed away and the displaced tendons in some degree restored. I make, as a rule, five pads (of tow and lint or leather): two about four inches long by one inch wide

(one a little shorter than the other, so as to be better adapted to the curve extending upwards from the dorsum of the foot to the crest of the tibia); another shorter, broader, and thinner, to place over the tibialis anticus and extensor proprius pollicis; and two, three or four inches long and bolster-shaped, to fill in the posterior fossæ on each side of the tendo Achillis. It is often advisable, in old-standing cases, to supplement the pads by strips of plaster to ensure firmer pressure. Both pads and strips of plaster should be made exactly to fit, as, if too large, they are useless, from the pressure being too diffused: and, if too small, they exercise too little pressure. A moment's consideration will render this obvious. If too large a pad, for instance, be placed over the outer postmalleolar fossa, its edges rest on the tendo Achillis and outer malleolus like the piers of an arch, leaving the fossa itself untouched. To keep these pads in their place, I use a long extended half-moon-shaped piece of plaster (*emplastrum saponis* spread on leather), long enough for the ends to overlap in front when the heel is placed in the centre, and a narrow oblong piece above this, placed round the lower part of the leg, to cover the upper part of the pads. The handiest way to apply the pads is to place an indiarubber band above the ankle, to slip the pads under it, and then, planting the heel in the centre of the curved plaster, to bring the two ends across the front of the joint so as to overlap. The pads having been secured in position, the elastic ring is to be cut, and the oblong piece of plaster put on so as to encircle their upper ends; lastly, the whole ankle is to be firmly bandaged. Amongst the working classes, or in the case of an uncontrollable patient, it is advisable to apply two thin splints over the anterior pads, keeping them in position by a long strip of adhesive plaster. Where there is much superficial ecchymosis, where there are bullæ, or where there is unhealthy-looking skin, instead of using soap-plaster, the pads may be kept in position and pressure maintained by a piece of lint on which ointment has been spread. Calamine ointment made stiffly is clean, and not uncomfortably greasy. If, as occasionally happens, even this

should cause irritation, warm wet lint covered by oiled silk may be advantageously used over the pads, and secured by a firm bandage; but neither of these applications can compare in efficiency with the soap-plaster spread on leather.

It is, as I have said, impossible in the limits of this paper to describe the method of adaptation of the pads to all the different joints; but a very little consideration will suggest the shape, size, and thickness necessary to be employed in each case.





